

REMARKS/ARGUMENTS

Claims 1 and 3-5 are pending. By this Amendment, claim 2 is cancelled and claims 1 and 3-5 are amended. Support for the amendments to claims 1 and 3-5 can be found, for example, in the present specification at page 10, lines 7 to 9, and in original claims 1-5. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Objection to the Claims

The Office Action objects to claim 1 as failing to include a transitional phrase. By this Amendment, claim 1 is amended to obviate the objection. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Rejection Under 35 U.S.C. §102

The Office Action rejects claims 1-5 under 35 U.S.C. §102(b) over WO 01/90818 to Morren et al. ("Morren"), WO 00/00546 to Kegley et al. ("Kegley"), or U.S. Patent No. 5,250,389 to Nakamura et al. ("Nakamura"). By this Amendment, claim 2 is cancelled, rendering the rejection moot as to that claim. As to the remaining claims, Applicants respectfully traverse the rejection.

Claim 1 recites "[a] cured material, obtained by irradiating a curable resin composition with an active energy ray so that a moiety of a polymer block A contained in the curable resin composition is crosslinked, the curable resin comprising an addition polymerization-based block copolymer (I), an ethylenic unsaturated compound (II), and a photopolymerization initiator (III), wherein: the addition polymerization-based block copolymer (I) is selected from block copolymers comprising at least one polymer block A and at least one polymer block B, and the hydrogenated products thereof; the polymer block

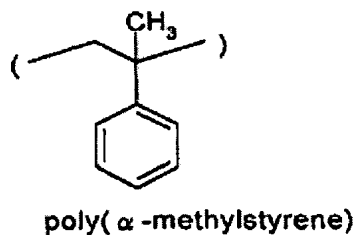
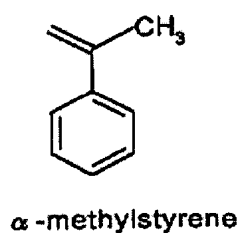
A comprises an aromatic vinyl compound unit containing at least 10% by mass of an alkylstyrene-derived structural unit (a) in which at least one alkyl group having 1 to 8 carbon atoms is bound to a benzene ring; and the polymer block B comprises a conjugated diene compound unit" (emphasis added). Morren, Kegley and Nakamura fail to disclose or suggest such a cured product.

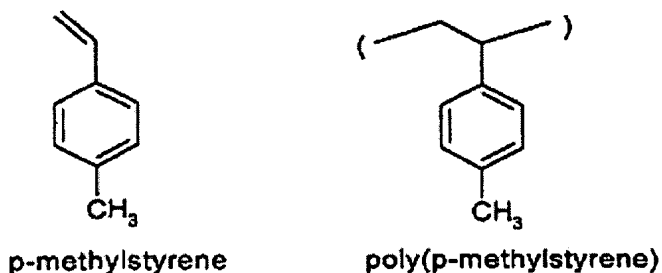
Claim 1 requires a crosslinked polymer block A including at least 10% by mass of an alkylstyrene-derived structural unit in which at least one alkyl group having 1 to 8 carbon atoms is bound to a benzene ring. None of the cited references discloses this combination of features. Morren discloses a photo-curable polymer composition that may include styrenic block copolymers. *See, e.g., Morren*, page 3, lines 17 to 29. Morren indicates that the styrene block may include alkylstyrene units (in addition to styrene units). *See Morren*, page 5, line 30 to page 6, line 2. However, Morren does not disclose that the alkylstyrene units necessarily be present, and does not disclose that the alkylstyrene units should be present in any particular amount. Moreover, Morren does not disclose that that the styrene block is crosslinked, as provided in claim 1. Applicants further note that Morren does not include any working examples, much less a specific example employing an alkylstyrene unit, as recited in claim 1. Accordingly, Morren does not disclose or suggest the particular combination of features recited in claim 1.

Kegley discloses a photo-curable polymer composition that may include a block of polymerized mono-vinyl aromatic monomer. *See, e.g., Kegley*, page 3, lines 22 to 28. Kegley indicates that the mono-vinyl aromatic monomer may include alkylstyrene units (in addition to styrene units). *See Kegley*, page 6, lines 25 to 30. However, Kegley does not indicate that the alkylstyrene units need be present at all, much less in any particular amount. Applicants note that none of the compositions in the Examples of Kegley includes alkylstyrene units at all. *See generally Kegley*, pages 16 to 21. Moreover, Kegley does not

indicate that the styrene block of the disclosed composition is crosslinked, as provided in claim 1. Accordingly, Kegley, like Morren, fails to disclose or suggest the particular combination of features recited in claim 1.

Nakamura discloses a photo-curable polymer composition that may include a block of polymerized mono-vinyl aromatic monomer. *See, e.g., Nakamura*, column 3, line 59 to column 4, line 16. Nakamura discloses, in a particular example, a curable resin comprising an addition polymerization-based block copolymer (poly (α -methylstyrene))-polybutadiene-poly (α -methylstyrene). *See* column 13, line 46 to 50. The Office Action asserts that this particular example of Nakamura provides a cured material, as recited in claim 1. *See* Office Action, page 4. As indicated above, claim 1 requires an alkylstyrene-derived structural unit (a) in which at least one alkyl group having 1 to 8 carbon atoms is bound to a benzene ring. The copolymer of Nakamura includes α -methylstyrene components. An α -methylstyrene component does not include an alkyl group bound to a benzene ring, as recited in claim 1. Rather, in α -methylstyrene, the alkyl (methyl) group is bound to the vinyl portion of the styrene component. In contrast, in the alkylstyrene-derived structural unit (a) of claim 1, an alkyl group is bound to a benzene ring. Compare, for example, α -methylstyrene and poly(α -methylstyrene), as in Nakamura, with p-methylstyrene and poly(p-methylstyrene). In poly(p-methylstyrene), a free radical forms on the methyl group, which is provided the benzene ring, allowing crosslinking to take place. By contrast, in poly(α -methylstyrene), because there is no methyl group provided on the benzene ring, crosslinking does not take place.





As is evident from the discussion above, Nakamura fails to disclose or suggest a crosslinked polymer block A including an alkylstyrene-derived structural unit in which at least one alkyl group is bound to a benzene ring, as provided in claim 1. Accordingly, Nakamura also does not disclose or suggest the particular combination of features recited in claim 1.

As indicated above, none of the cited references discloses or suggests the particular combination of features recited in claim 1. Applicants further note that any assertion that it would have been obvious to pick and choose from the teachings of the cited references to obtain the cured material of claim 1 would be rebutted by the results shown in the present specification – "[a] *prima facie* case of obviousness ... is rebuttable by proof that the claimed compounds possess unexpectedly advantageous or superior properties." *See* MPEP §2144.09 (citing *In re Papesch*, 315 F.2d 381 (C.C.P.A. 1963)). The Examples of the present specification demonstrate that cured materials, such as recited in claim 1, provide superior performance relative to known cured materials, such as disclosed in Morren, Kegley and Nakamura. Examples 1 to 6 are directed to cured materials according to the present invention, which include a p-methylstyrene-containing hard block, which is subjected to crosslinking, while Comparative Examples 1 to 6 are directed to cured materials, which include a styrene-containing hard block, and thus are not crosslinked. *See, e.g.*, present specification, pages 32 to 36. As shown in Tables 1 and 2 of the present specification, the cured materials according to the present invention provide superior performance in tensile strength at break, elongation at break, and reproducing a negative image when used as

flexographic plates. These results are objective evidence of the improvements of the cured material of claim 1 over known cured materials, as disclosed in Morren, Kegley and Nakamura, and thus these results rebut any suggestion that it would have been obvious to modify the cured materials of the cited references to obtain the cured material of claim 1.

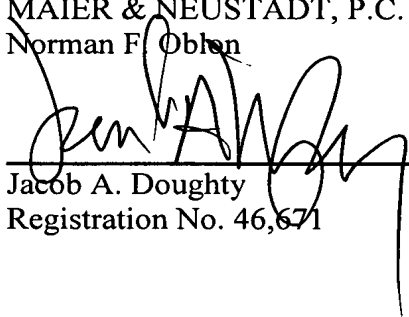
As explained, claim 1 is not anticipated by Morren, Kegley or Nakamura. Claims 3-5 depend from claim 1 and, thus, also are not anticipated by Morren, Kegley or Nakamura. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1 and 3-5 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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